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# Reading Mastery Versus Word Study Instruction as it Pertains to Third Graders' Reading Achievement Scores

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# READING MASTERY VERSUS WORD STUDY INSTRUCTION AS IT PERTAINS TO THIRD GRADERS' READING ACHIEVEMENT SCORES

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This study was conducted in order to compare two phonics-based approaches to teaching reading. The two approaches were Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) and Word Study (Bear et al. 1996). While Reading Mastery has been compared to other reading methods to examine the effectiveness of instruction with reading achievement measures, there are no studies that compare Word Study to other methods of reading instruction. The purpose of the present study was to compare Reading Mastery and Word Study instruction groups in terms of reading achievement scores. This study included 36 third grade students, 18 in each group. All students were measured with the Comprehensive Test of Basic Skills- Terra Nova (CTB/McGraw-Hill, 1991). The results from this study suggest that there was not a significant difference between the Reading Mastery and Word Study groups as measured by the reading scores of the Comprehensive Test of Basic Skills (CTBS). However, the Word Study instruction group was significantly higher in the areas of Spelling and Word Analysis on the CTBS.

## Literature Review

In the last century, there has been passionate debate over which methods are the most effective ways to teach reading to children in the primary grades. Prior to the mid 1960's, many of the theories on the teaching of reading skills were based on the works of early pioneers in the field of education. Theorists such as Edmund Burke Huey, who examined psychological influences on reading, John Dewey, who wrote about educational contexts from which to view reading education, and Edward Thorndike, who examined the relationship between reading and reasoning, all made major contributions to reading curriculum in this century (Herber, 1994).

Dewey's impact centered on his advocacy that education should reflect the practices and principles of our 'democratic' society. The curriculum should focus on varied learning experiences important to the child rather than on the traditional practice of rote learning/memorization and teacher centered curriculum. Dewey believed that education should be non-authoritarian, and should focus on the child's struggles to solve problems integral to his/her own social experiences (The Oxford Companion to Philosophy, 2002). Huey published a book in 1908 titled *The Psychology and Pedagogy of Reading* that remained an influence for the Whole-Language movement that became prominent in the 1980's. A major component of educational reform was that Huey suggested that children should be taught to read in stages. Thorndike's work discredited

the educational practice that the teaching of formal courses such as Latin and mathematics strengthens the mind (the "mind as muscle" approach). Thorndike posited that learning was best if it was based on relevance to what is already known and that the learned response is strengthened more by a positive reward (Clark, 1999).

As described by Pearson and Stephens (1994), reading theorists such as Arthur Gates, William Gray, and Emmett Betts made contributions to the field of reading theory with their research and articles. Gates examined numerous factors and their impact on reading such as recitation, phonemic training, spelling, and role of personality on reading, and emergent literacy. Gray published articles about testing, phonics, reading and curriculum, reading instruction, psychology and reading, and maturity and reading. Betts made contributions with his work on reading instruction for remedial readers. These theorists in the early part of the century shaped the collective views about how children learn to read, write and comprehend text. However, the field has moved significantly away from these theorists as will be discussed in the next section.

*Early Perceptions of Reading*

Up until the mid-1960's, reading was viewed as a process where readers translated graphic symbols (letters) into a verbal code (the sounds that correspond to the letters). It was thought that after children translated the graphic symbols into a verbal code, they listened to the sounds and the words they were producing. Reading comprehension was thought to be nothing more than a comprehension of speech spoken by the reader. Thus, there were no perceived differences in the way the reader understood oral or written language. With this view of the reading process, the primary focus was on teaching children to recognize the visual symbols and translate those into a verbal code.

This still was one skill that could be taught by breaking it down into components, practicing it, and then testing to see that the skill was mastered (Pearson & Stephens, 1994).

*Changes in Perceptions of Reading*

In the late 1960's, professionals from a variety of disciplines began to examine the reading process, including those in the fields of linguistics, psycholinguistics, cognitive psychology, and sociolinguistics. Contributions to understanding reading made in each of the fields will be discussed.

*Linguistics.* The linguists made an impact on the current perceptions about reading with their research and publications with the conceptualization of two important ideas. The first idea was that literate societies represent significant features of their language in written language (e.g., all the letters have a sound, spaces between words help us to discriminate between words). The second idea was that it was unnecessary to represent in written language that which will be inferred from the normal process of language (e.g., different pronunciations of "ed" to denote past tense-walked, stabbed, and added). More specifically, there is no need to mark different pronunciations with different spellings because readers will naturally use the variation appropriate for the specific situation. If we see "walkt" or "stabt" we will naturally pronounce them with the proper "ed" ending. Our knowledge and experience with our own language will naturally predispose us to make the correct pronunciation (Thomas, 1965).

Perhaps the most influential linguist, Noam Chomsky, developed a revolutionary way of thinking about language with his nativist view about children's acquisition of

language. Chomsky believed that children come into the world "wired" to learn language. According to McNeill (1966), Chomsky and others,

> .... drew this reference from two basic and contrasting facts about language: (a) language is incredibly complex and (b) language is acquired easily and naturally by children living in an environment in which they are simply exposed to (rather than taught!) the language of their community before they get to school. (p. 25)

This view of language and language development had a major impact on reading instruction and theory in the 1960's and 70's. According to Pearson and Stephens (1994), Chomsky and other linguists

> .... revolutionized the field of linguistics and paved the way for equally dramatic changes in the way psychologists thought about and studied the processes of language comprehension and language acquisition. What Chomsky did was to provide a characterization of the nature of language and language development that completely undermined the behaviorist accounts of language comprehension and acquisition that had dominated both linguistics and psychology during the previous fifty years. (p. 25)

Chomsky did this by showing that language comprehension could not be explained as merely stringing together the meanings of words; he contended that readers can immediately link a subject and verb in a sentence where other clauses have been added (Chomsky, 1965).

*Psycholinguistics.* Immediately following in the footsteps of linguistics came a new field called psycholinguistics that further developed the linguistic theories of Chomsky. Several ideas emerged from research conducted by the psycholinguists. The

two main branches of research concerned linguistic theories for language comprehension and language acquisition. Researchers such as Brown (1970) determined that language learning was a process governed by rules. Children did not imitate written language, but were instead participants in language and invented their own rules about language (Brown, 1970). This work by Brown accounted for why children might make such errors as "I gots two foots" and "I rided in the car"; children assumed the way to make the verbs past tense was by adding /ed/ or /s/ to the verbs. This work showed rather conclusively that children "were active learners who inferred rules and tested them out. Much as Goodman would later show with written language, 'mistakes' in oral language could be used to understand the rule systems that children were inventing for themselves" (Pearson & Stephens, 1994, p. 26).

In the mid-1960's, Kenneth Goodman made contributions to the field of reading instruction with his work in error analysis; he coined the term *miscue analysis.* Goodman (1965) demonstrated that the errors children make in their oral reading were keys to the inner workings of their minds and should not be considered as "mistakes." Goodman further postulated that when children read words within a story context, they were able to read many more words than when reading the words from unrelated word lists. Goodman (1967) claimed that readers use syntactic cues, semantic cues, and graphophonemic cues when comprehending reading text. He argued that word order and context provide syntactic cues for the reader to understand the meaning of text.

Overall, the psycholinguistic perspective made the following contributions to the field of reading: (a) it encouraged the use of literacy activities (such as worksheets and games) that focused on meaning, (b) it encouraged the use of texts in which authors relied

on natural language patterns, (c) it focused on error analysis to understand a child's reading process, (d) it explicitly linked oral and written language with the development of a theory of reading as a constructive theory, where reading is viewed as a language process rather than a perceptual process, and (e) it changed the way people thought about, as well as taught reading (Smith, 1971).

*Cognitive Psychology.* In the 1970's the field of cognitive psychology offered additional insight on how children make sense of what they read. Researchers such as Stein and Glenn (1979) and Rumelhart (1975) studied the process by which readers comprehended text by exploring how the underlying structures of texts may impede or enhance comprehension. Kintsch (1974) and Meyer (1975) analyzed how structural accounts of informational texts could be used as models for understanding reading comprehension. While their research did help to explain how readers make meaning out of text, it did not take into account the knowledge and experience readers bring to text reading that affects their reading comprehension.

Schema theory was introduced to help explain the way in which children comprehend meaning from text. As described by Pearson and Stephens (1994), schema theory is "a theory about the structure of human knowledge as it is represented in memory" (p. 31). According to Anderson and Pearson's (1984) work on schema theory, children bring their own life experiences which may be specifically related to their cultural background (e.g., race, ethnicity, socioeconomic status) to reading and this influences how they understand and derive meaning from what they read. For example, children born and raised in rural areas may not be aware or have knowledge of things that urban children know about such as the subway, city busses, and taxis. Likewise, urban

children may not be knowledgeable about common rural things such as tractors, cattle, and crops. This perspective sparked new questions about how to teach reading, as well as how to fairly assess it. Prior to this research, little thought was given to individual differences among children and how cultural experiences might impact learning to read (Pearson & Stephens, 1994).

*Sociolinguistics.* The 1970's also saw the development of the sociolinguistic perspective, which emphasized the issues of dialect and reading. Researchers, such as Labov (1972) and Baratz and Shuy (1969), found that dialects were not merely half-formed variations of proper English but were well-formed linguistic systems of their own. Dialects came complete with rules for deviation from standard English, as well as a system of language development. These researchers emphasized that the goals of education should not be to extinguish the dialect in the process of learning to speak standard English, but that a child's particular dialect should be accommodated in the process of learning to read, write, and speak (Baratz & Shuy, 1969). Researchers from this perspective made contributions to the field of reading in several ways. For one, they emphasized the notion of contexts of reading, such as instructional, non-instructional, home, and community contexts. Their work also demonstrated that reading could be considered a social process, in that language enables us to get our needs met in our society.

In the 1980's, research from the sociolinguistic perspective studied the effects of previous literacy experiences on later academic success; it was found that children with the highest levels of early literacy experiences performed the best in school. Perhaps the most important contribution was the change in the way literacy was viewed in terms of

community and in society. This change in attitude about literacy brought changes into the classroom as well; the notion of competitiveness was de-emphasized, school labeling of different academic abilities was changed to promote more positive views of different achievement abilities, and instructors experimented with different ways of grouping children so that they can better learn and help other children to learn as well (Wells, 1986).

*Competing Theories of Reading*

The two prominent theories of teaching reading that emerged from the research on the pedagogy of reading in the 1960's and 1970's are the phonics approach and the Whole Language approach. Both Whole Language and phonics approaches to reading instruction have fallen in and out of favor, depending on the particular educational climate of the times.

*Whole Language.* The Whole Language approach, developed in the 1980's, changed some of the basic beliefs about reading instruction. The basic idea behind Whole Language is that children construct meaning from text through a process that occurs over many years. Children are to be immersed in literature as opposed to getting direct instruction for explicit skills, such as learning letter sounds (Cutting & Milligin, 1991; Kamii, 1991). Proponents of this method believed that children learn to read by gleaning meaning from text (Stahl, Stahl, & Duffey-Heston, 1998). Through immersion in the literature, language and reading acquisition will occur. Whole Language proponents advocate learning words as a "whole" and not learning the components of the words in separation; therefore, a "whole word" strategy is emphasized with the Whole Language approach.

The Whole Language model of reading was based on the work of Goodman (1976), which identified three cuing systems that readers used to identify words in text: graphophonemic, syntactic, and semantic. Clearly, this model included a phonemic component, but practitioners of this method largely de-emphasized the phonemic component. Some practictioners of Whole Language believed it was necessary to teach phonics only if the child needed it as a way to comprehend meaning from the text. Many teachers who adopted the Whole Language approach believed words should not be taught in isolation, that phonics instruction should only be given on an as needed basis, and only reading materials with Whole Language should be used during instruction i.e., no written materials with emphasis on different letters or letter-sounds (Stahl et al., 1998). Letter-sound correspondence may be taught in a whole language approach, but it would be taught only on a "need to know" basis as children learn how to read and comprehend text (Stahl et al., 1998). Once the word is learned as a whole, the child may then be able to see patterns of sounds in words, and phonics is learned implicitly.

The Whole Language approach assumes that given enough time and exposure to literature, children who are "behind" will eventually catch up to their classmates. Yatvin (1991) defined the theory behind the whole language approach:

> The premise of whole language is that children are born with the capability to learn all facets of their native language and the beginnings of literacy before coming to school. Children will continue to learn successfully in a healthy school environment where there are interesting materials and activities, teachers who appreciate and cultivate children's skills, opportunities for active learning, and classmates who work cooperatively with them. (p. 2)

In addition, Goodman and Goodman (1986) offered a more thorough definition of the whole language approach as well as a criticism of phonic approaches:

> Readers construct meaning during reading. They use their prior learning and experience to make sense of the texts. Readers predict, select, confirm, and self-correct as they seek to make sense of the text.... Basal readers, workbooks, skills sequences, and practice materials that fragment the process are unacceptable to whole language teachers.... Readers are seeking meaning, not sounds or words. They may use their developing phonics generalizations to help when the going gets tough. If they are lucky not to have been taught phonics in isolation, with each letter equally important, then they will not be diverted from developing the strategies necessary to select just enough graphic information to get to the sense they are seeking. (p. 34)

While proponents of Whole Language felt that children would naturally acquire the necessary skills to read, other researchers dissented in opinion and criticized the Whole Language perspective. Clay (1979) conducted two longitudinal studies in which she examined the beginning reading processes in children. This study examined identification of reading problems, early reading behavior and language development, preschool experiences, an introduction to print, error analysis, the visual perception of print, and the organization of reading behavior. The results of Clay's study did not support the belief that over time all children would acquire the skills necessary for language and reading acquisition:

> There is an unbounded optimism among teachers that children who are late in starting will indeed catch up. Given time, something will happen! In particular,

> there is a belief that the intelligent child who fails to learn to read will catch up to his classmates once he has made a start. Do we have any evidence of accelerated progress in late starters? There may be isolated examples which support this hope, but correlations from a follow-up study of 100 children two and three years after school entry lead me to state rather dogmatically that where a child stood in relation to his age-mates at the end of his first year at school was roughly where one could expect to find him at 7.0 or 8.0. (p. 13)

*Phonics.* While Whole Language approaches to reading instruction dominated the field throughout the 1980's in the United States, Europe was using phonics instruction. Although pockets of areas in the United States were teaching phonics, the overwhelming belief in reading instruction was that sounding out letters was tedious and required too much drill and repetition (Stahl et al., 1998). Phonics was found to be effective in the schools where it was implemented, but fought strong opposition from teachers trained in a Whole Language perspective (Matthews, 1996). Whole Language instruction in the 1990's continued to dominate over other methods; 85% of children in the United States received whole word instruction by the early 1990's (Groff, 1995). While Whole Language instruction continued to dominate reading instruction in the United States, evidence mounted that children needed phonics instruction in order to learn how to read more effectively. The International Reading Association recently began to promote phonics instruction as part of a comprehensive reading program (Palmaffy, 1997). In addition, the American Federation of Teachers recently took a stand on supporting the instruction of phonics for beginning readers, "We created a terrible nightmare for a lot of

kids who haven't been able to learn to read using whole language by itself" (Palmaffy, 1997, p. 34).

Many of the contemporary phonics programs are based on the work of Adams (1990) and Chall (1989). Their research demonstrated that early reading instruction needs to focus on teaching children to decode sounds. Early emphasis on decoding led to better reading achievement than teaching these skills on an "as needed" basis (Adams, 1990). According to Adams (1990), there are five levels of decoding: (a) appreciation of the sounds in spoken language, (b) the ability to compare and contrast sounds in words by grouping words that sound similar, (c) the ability to blend and split syllables, (d) isolation of individual sounds in syllables, and (e), the ability to manipulate phonemes by making new words out of them. A typical phonics approach will use the following in its curriculum:

1. Direct instruction of letter-sound correspondence, which would include the following tasks:

- Rhyming tasks, such as having the child determine if words rhyme, or by having the child produce rhymes.
- Word-matching-tasks, such as having a child determine if words begin or end in the same way (e.g., man, ran, tan).
- Sound-to-word matching tasks, where the child has to determine whether a particular sound is found in a word (e.g., the child has to determine if there is a /r/ sound in car, road, hard).

- Initial and final sounds, where a task might include asking the child to give the beginning sound in the word "ghost", or the ending sound in the word "man."
- Segmentation tasks, which involves having the child to break down a word into sounds such as making the /c/ or /k/ , the /a/, and the /t/ sound in the word "cat."
- Blending tasks, such as putting the sounds of a word together, such the /r/, /a/, and /n/ sounds in the word "ran."
- Deletion and manipulation, where the task requires the child to mentally remove a sound in order to make another word, such as having a child say the word "boat" without the /b/ sound (oat), or without the /t/ sound (bow).

2. Instruction in the forms of letters. Chall (1996) showed with her research that if children know the names of the letters they will experience more success in reading than if they are not required to learn the names of the letters. This would eventually include instruction in identification of both capital and lowercase letters.

3. Instruction should not be bound to the teaching of rules, or to the use of worksheets. Clymer (1963) studied the use of commonly used rules such as "when two vowels go walking, the first one does the talking," and found that rules such as these were applicable about forty-five percent of the time. This finding does not mean that rules should never be taught, but that rules should not dominate instruction time (Adams, 1990). Studies by Haynes and Jenkins (1986), and Leinhardt, Zigmond, and Cooley (1981), compared the amount of time students spent on worksheets to their gains in their

reading achievement scores. They concluded that more time spent using worksheets did not correlate with higher reading achievement scores.

4. Phonics instruction should provide adequate time for the reading of words. According to Adams (1990), children learn to identify words by using spelling patterns. These patterns are learned by the practice of reading words that contain these patterns. There are three kinds of practice that should be used in a phonics program: (a) reading words in isolation, (b) reading words that are in stories, and (c) writing words. Reading words in isolation involves the use of reading words in a non-contextual setting in order to learn letter-sound correspondence and spelling patterns. The reading of words in stories may include works of literature, contrived text such as books that contain words where there is a specific emphasis on sound-letter correspondence, or on word patterns. The use of writing activities may include writing words that have been dictated, or by having a child use invented spellings. A dictation task might include a direct instruction of letter-sound correspondence, and then reinforcement of that skill through writing the words from dictation (Stahl et al., 1998).

Invented spelling involves having a child use his/her own knowledge about spelling and sounds to create their own spelling. Current studies by Bear and Barone (1989) and Stahl and Murray (1998) concluded that invented spelling mirrors a child's developmental acquisition of both phonics awareness and letter-sound correspondence. In the early stages of learning to read, teachers do not necessarily need to correct misspellings, as they are important to a child's development of letter-sound knowledge (Clarke, 1989). Much controversy surrounds this approach, as the decision of when to

begin correction of misspellings should begin, lest a child continue for too long with misconceptions about spelling (Stahl et al., 1998).

5. Phonics instruction is but one part of a complete reading program. While it is important for children to learn how to read, through the mechanics of sounding out letters and learning word and spelling patterns, it is also important for children to have some choice in their selection of reading material (Morrow & Tracy, 1998), and it is important that children be read to from a variety of reading materials (Feitelson, Kita, & Goldstein, 1986).

Despite the research that supports a need for phonics instruction in beginning readers, the debate between phonics and whole language continues to rage on (Stahl et al., 1998). Despite the debate between these two methods, there exists a need to find good instructional methods for children who struggle with the difficult task of learning to read. According to Reid Lyon, Director of the National Institute of Health, "Reading failure is a serious national problem and cannot be attributed to poverty, immigration, or the learning of English as a second language" (as cited in Palmaffy, 1997, p. 34). Therefore, it is important to continue to find and examine reading instruction methods to help children acquire the skills necessary to become proficient readers.

*Contemporary Phonics Reading Programs*

Recent studies in reading research advocate a more balanced approach to reading instruction, one that includes both phonics and Whole Language activities. A balanced approach emphasizes the use of explicit strategies to teach the phonics skills necessary for children to decode words, as well as the use of language and literature activities in

order to promote reading and reading comprehension skills. According to Vellutino (1991):

> The implication of the research for teaching children to read should be apparent. The most basic dictate seems to be that instruction that promotes facility in word identification is vitally important to success in reading. However, there is nothing in the research that precludes the use of whole-language-type activities in teaching reading. Conversely, the research runs counter to exclusive versions of either whole language or code-oriented approaches to reading instruction. In other words, the research supports a balanced approach. (p. 442)

Contemporary reading curricula that emphasize a more balanced approach to reading instruction include the use of both explicit phonics instruction and literature activities.

Two phonics based reading programs that use a more balanced approach will be described. One such reading approach, SRA's Reading Mastery (SRA Macmillan/McGraw-Hill, 1995), uses a method called Direct Instruction. Direct Instruction is a highly structured system of teacher-student interaction that is systematic, phonics based, and empirically tested. The focus during instruction is on developing reading skills, building vocabulary, increasing reading rate, fluency, and comprehension. Reading Mastery is a phonics approach based on previous behavioral analyses of decoding in children (Kameenui, Simmons, Chard, & Dickson, 1997). This program consists of six levels of instruction.

Levels I and II consist of 160 daily lessons each and focus on the beginning stages of literacy. Lesson I consists of basic decoding and comprehension skills. Instruction of decoding consists of an explicit phonics method that stresses letter sounds and blending.

The program uses a specially constructed alphabet that is thought to minimize letter confusion for beginning readers (SRA/Macmillan, McGraw-Hill, 1995). Once a child begins to exhibit strong decoding skills, comprehension skills are taught through the use of reading children's literature. During Level II, the special reading alphabet is replaced with the traditional orthographic alphabet. Lessons in this level focus on building accuracy and fluency. Strategies for decoding difficult words are taught, as well as comprehension activities that emphasize personal interpretation of reading material. As systematic phonics and decoding strategies are phased out, reasoning skills such as application of rules, drawing conclusions and using deductive thinking are emphasized. Literature such as fiction, fantasy and factual books are used in this phase for reading materials.

Level III focuses on the use of reasoning and reference skills. This level consists of 140 daily lessons. Higher-level skills such as the use of meta-cognition and schema strategies are taught so that children can further their comprehension skills. Students learn how to infer meaning, predict outcomes, and make conclusions about what they are reading. This level also includes the use of writing activities and reading of classic and modern literature.

In Level IV, students concentrate on learning problem solving skills and reading in the content areas. There are 140 daily lessons in this level, and the main focus is on the development of complex comprehension strategies, such as using schema about the world to apply to reading comprehension, evaluating problems and solutions, and learning facts about fiction, non-fiction, and fantasy reading materials written specifically for the program. The reading materials are organized so that the reading selections add

information to the student's developing body of knowledge that they can use to apply to new information from a variety of different contexts. Again, reading selections include classic and modern literature.

Level V emphasizes literature analysis and writing activities in its 120 daily lessons. At this level, students learn critical thinking, analysis of character, plot, theme and setting in reading selections, and development of outlines for their writing activities. There are daily writing activities in which students write, revise, and share their work with other students. Reading context is emphasized so that students may infer main ideas and derive word meanings from the context in which they appear. Literature materials include classic and modern literature as well as narratives, biographies, plays, novels, poetry, and expository writings.

In Level VI, the its 120 daily lessons are focused on the development of critical thinking skills, such as interpretation of figurative language and complex sentence forms, understanding the use of literary irony, and learning to identify contradictions and faulty logic in reading materials. Daily assignments include extended writing practice to help students build their writing skills through editing and sharing of stories and poems. The reading materials in this level are similar to those in Level V, which include classic and modern literature, narratives, plays, poetry, short stories, novels, factual articles and biographies.

The SRA Reading Mastery instruction consists of highly structured lessons using cuing and reinforcement procedures in order to teach children letter sounds, decoding, blending, and reading words in context (Kameenui et al., 1997). Students are pretested in order to determine group placement and practice is guided (although independent practice

is also encouraged). Students are frequently monitored and assessed, and children receive built-in repetition of phonics training. The instruction is scripted with teachers using flip books containing teacher and children's correct responses. Lessons are fast paced. There are specifically constructed books that children use to practice and learn words, although teachers may encourage children to read and use literature as well (Invernizzi, Abouzeid, & Bloodgood, 1997).

Another phonics approach to reading instruction that includes both phonics instruction and whole language activities is Word Study (Bear, Invernizzi, Templeton, & Johnston, 1996). Word Study developed from research by Henderson (1985) and Templeton and Bear (1992) on how children acquire word and letter knowledge as they learn to read and write. This research shows that children learn about words in a progressive manner. First they learn letter-sound correspondences, then patterns of long and short vowel sounds, then structures within words, and, finally, they learn to recognize Greek and Latin word stems and roots. Word Study follows basic cognitive learning processes such as comparing words within and between categories in order to group words that are similar, and to examine words in order to determine patterns of consistency or inconsistency. Because Word Study is based on developmental principles of how children learn to read, write, and understand written words, it is considered to be developmentally appropriate (Bear, Templeton, & Warner, 1991). There are no worksheets, flip books, or grammar book exercises, which differentiates this method from most other reading approaches. Word Study instruction also includes error analysis of children's spelling, focusing on features that are spelled correctly. This method allows the teacher to target instruction toward features of spelling that the children are using but

may find confusing. Teaching activities are frequently in a game-like format, which some children may find both amusing and motivating (Invernizzi et al., 1997).

Word Study instruction begins by differentiating students based upon their demonstrated levels of letter-sound awareness (Invernizzi, Abouzeid, & Gill, 1994). According to Bear et al. (1996), developmental spelling research has described children's acquisition of knowledge of words as a series of chronologically ordered stages. These stages begin in the alphabet layer and develop into the meaning layer. According to Invernizzi et al. (1994):

> Children move hierarchically from easier one-on-one correspondences between letters and sounds, to more difficult, abstract relationships between letter patterns and sounds, to even more sophisticated relationships between meaning units as they relate to sound and pattern. Stages are marked by broad, qualitative shifts in the types of spelling errors children commit as well as behavioral changes in their reading and writing. (p. 157)

These stages, according to Bear et al. (1996), are (a) emergent, (b) letter name-alphabetic, (c) within word, (d) syllables and affixes, and (e) derivational relations. The emergent stage would coincide with an emergent reader, a student who is just beginning to read. The letter name-alphabetic stage would coincide with a beginning reader. The within word stage would be a transitional reader. The syllables and affixes stage would apply to an intermediate reader, while the derivational relations stage would apply to an advanced reader. A diagnostic spelling inventory is given to determine at what stage the student is functioning as a reader.

Students in the emergent stage have not yet developed letter-sound correspondences. They may recognize symbols or logos, but they are not systematic in their use of any particular clue. Students may write with scribbles or letter-like forms, but they have no phonetic relationship to the letters they are trying to write. Word Study tasks during this time include teaching children to recognize and write the letters of the alphabet, playing with sounds in words, analyzing sounds in words, and picture sorting where the student must categorize words by beginning consonants of rhyming sounds.

Once a student begins to understand that there are systematic matches between sounds and letters, they begin to enter the letter name-alphabetic stage. Students at the beginning of this stage have moved from pretend reading to real reading. As students make more of these sound-letter correspondences, their reading ability grows. Students in this stage read predictable pattern books, rhymes, and jingles. During this stage students spell in a linear, sound-by-sound fashion, the same way that they read and write. Word Study activities in this stage include the following: (a) reading to students to encourage oral language development; (b) reading of patterned trade books, dictations, and simple rhymes; (c) recording and rereading individual dictations one paragraph long; (d) labeling pictures; (e) writing in journals; (f) collecting words for a word bank; (g) word sorting; (h) studying word families that share a common vowel; (i) studying initial consonants and blends; and (j) encouraging invented spelling.

The transitional reader or within word pattern student has begun to approach fluency in both reading and writing. Students in this stage are using initial and final consonants, consonant blends and digraphs, and short vowels in the context of simple word families. Student can now read independently and silently. They have built an

extensive list of sight words, and their reading and writing speed has increased significantly. Word Study activities at this stage include the following: reading aloud to students, planning self-selected silent reading of simple character books, daily writing activities, word sorting activities containing long and short vowel sounds as well as common long vowel sounds, comparing words with r-controlled vowels, exploring less common vowels and dipthongs (*oi*, *ou, au*, and *ow*), and examining homographs and homophones.

The next stage is the syllable and affixes or the intermediate reading and writing stage. Students in this stage typically spell most single-syllable words correctly, read with good fluency and expression, read faster silently than orally, and can generate written responses that are sophisticated and critical. Word Study activities at this stage consist of the following: planning read-alouds and literature discussions, self-selecting or assigned silent reading of novels from different genres, teaching simple note-taking and outlining skills, exploring reading and writing styles and genres, examining unaccented syllables such as *er* and *le,* joining spelling and vocabulary studies, exploring grammar, word sorting with prefixes and suffixes, and studying stress or accent in two-syllable words.

The last stage of reading development is the derivational relations or advanced reading stage. In this stage students have mastered high frequency words, read with good fluency and expression, read faster silently than orally, make errors on low-frequency multisyllabic words derived from Latin and Greek combining forms, and write responses that are sophisticated and critical. Word Study activities at this stage include the following: silent reading and writing, exploring various genres as interests arise, developing study skills such as textbook reading, note taking, reading rates, test taking,

report writing, and reference work, focusing on literary analysis, examining common and less common roots, prefixes, and suffixes, and exploring etymology in content areas.

*Summary of Contemporary Phonics Reading Programs*

While Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) and Word Study (Bear et al., 1996) are both phonics-based approaches, they differ in their approaches to instruction. Whereas Reading Mastery uses a heavily scripted instruction format, Word Study emphasizes teacher input and flexibility with its lessons. The Reading Mastery curriculum emphasizes the use of repetition and drill in order for students to learn letter-sound correspondences and ultimately to learn how to read. The Word Study curriculum focuses on the use of picture and word sorting activities so that students spend the majority of their time comparing and contrasting words. In addition, the phonics instruction in Word Study begins with the whole word and progresses to the individual sound-letter correspondence, which is in direct contrast to Reading Mastery, where instruction begins with the individual sound and progresses to the whole word. The last major difference between the two programs is that Word Study includes the use of many games, such as "word bingo" and "go fish," that are part of the weekly curriculum. The Reading Mastery curriculum does not include the use of word games. While Reading Mastery has been studied vigorously in order to find out how effective instruction is when compared to children's reading achievement, Word Study research has concentrated on examination of the relationship between spelling ability and reading achievement.

*Reading Mastery and Reading Achievement*

Perhaps the most important research on the effects of Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) on reading achievement is Abt Associates' (1977) analysis of Project Follow Through, a government funded study on various reading methods. This research included over 10,000 low-income students nationwide and lasted from 1968 to 1976. This project compared nine different reading/instruction models with three different approaches: (a) a Behavioral approach (Basic Skills model) which was based on the assumption that all behavior is learned, and training is focused on teaching children the skills necessary to accomplish academic and social goals; (b) the Cognitive developmental approach which is based on a developmental model where children learn verbal and social skills through interaction with the teacher; and (c) the Psychodynamic approach which is based on the idea that a child's social and emotional development is what is necessary to make educational gains with emphasis placed on improving a child's self-esteem by providing an environment that is conducive to the child's process of becoming self-actualized.

The Basic Skills models included the Behavior Analysis model, the Direct Instruction model (Reading Mastery), and the Developmental model. The Cognitive Models included the Cognitively-Oriented Curriculum model, the Florida Parent Education model, and the Tucson Early Education model. Psychodynamic or Affective Skills models included the Bank Street College model, the Open Education model, and the Responsive Education model. Each of these models were used and evaluated at multiple school sites with children in kindergarten or first grade. Each site identified a non-Follow Through comparison site (i.e., a site that was not using any of the Project

Follow Through instruction models for its reading curriculum) for use as a control group. Students were assessed at the beginning of the project and then every spring through the third grade. A wide variety of achievement measures were used, as well as cognitive and affective skill inventories. The results of this study showed that the children who made the most gains regardless of educational model were children in kindergarten and first grade, and the gains were made on both math and reading measures. In the reading area, only the Direct Instruction (Reading Mastery), Behavior Analysis, and Bank Street models were able to produce reading progress that was better than or equivalent to the progress of the control group children. Of these models, only the Direct Instruction (Reading Mastery) group out performed the expectations determined by the control group. In addition, the Direct Instruction (Reading Mastery) group was the only group of children who consistently scored close to the national averages, both in the early and later grades.

*Reading Mastery and High Risk Populations*

A study by Umbach, Darch, and Halpin (1989) compared Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) to the Houghton-Mifflin Reading Series, a basal approach to teaching reading. Basal reading programs typically include a series of whole language-based books that increase in difficulty as students' progress through different levels. Their study compared the two methods by examining the scores on a standardized reading test for low SES first graders from a rural area. The 31 students selected for the study were two first grade classes identified by the regular education teacher as students who were struggling with reading. The students were pretested using a standardized reading achievement test, which includes subtests that measure such skills as word attack,

letter identification, word identification, and word and passage comprehension. Students were tested again at the end of the school year with an alternate form of the standardized reading achievement test and with a reading subtest of another commonly administered reading achievement test. The results of their study showed statistically significant higher scores for the Reading Mastery group as compared to the Houghton-Mifflin group.

Kaufman (1974) studied the effects of the Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) reading program on Title I first and second grade students by comparing them to non-Title I students in the conventional reading program. Kaufman compared the Title I students to non-Title I students in the conventional reading program. His research provided mixed results for the first grade students. Reading Mastery showed no advantage over the conventional instruction in terms of oral language ability. The second grade students who received Reading Mastery instruction performed strongly in spelling, word study skills, and arithmetic computation, but did not perform as strongly as the students in the conventional instruction group. By the end of third grade, the Reading Mastery group performed close to grade level with a strength in arithmetic computation (compared to the non-Title I students).

*Reading Mastery and Other Phonics-Based Approaches*

Other researchers have compared Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) to other reading programs that are similarly phonics-based. Ogletree (1976) examined the effects of Reading Mastery on 258 low SES inner city kindergarteners in the Chicago area. His study compared Reading Mastery to the Eclectic Readiness Program (ERP), which uses a variety of methods to teach reading. A standardized achievement test was used after one year of instruction for both methods at the end of the

kindergarten program. The scores at the end of the year showed significant gains in language and mathematics for the ERP students, significantly higher than those of the Reading Mastery group. Ogletree hypothesized that the students in the ERP program might have done better because the curriculum was more compatible with the learning styles of the children in the study. According to Ogletree:

> The difference in adaptability of the Eclectic Readiness Program as compared to that of the rather uniform, rigid, and drill approach of the Reading Mastery program may account for the significant difference in the mean language and arithmetic scores of the two groups. Children, as well as adults, learn best that which they are interested in, and that which meets their emotional and intellectual needs. Generally the method of learning, e.g., language, is an eclectic one (p. 69)

A recent study by O'Connor, Jenkins, Cole, and Miles (1993) compared Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) to another phonics reading program called *Meet the Superkids* and *The Superkids' Club*. *Superkids* is similar to Reading Mastery in that it introduces letter sounds in isolation, teaches blending, and uses vocabulary words that have regular decodable spelling. However, it differs from Reading Mastery in that it clusters letters with similar visual and auditory features, it introduces and tests letter names along with their sounds, it does not require children to master all letters, it does not have specific correction procedures, and it provides less frequent testing. The participants in the study were six-year-olds placed in special education kindergarten classes. Children were assessed at the beginning of the program and also at the end of the school year for four years. A variety of achievement and ability tests were

administered, as well as the reading and spelling portions of individually administered standardized achievement tests. The results indicated no significant achievement differences between the two groups at the end of the treatment year or on follow-up tests one year after.

*Word Study and Reading Ability*

While Reading Mastery has been studied thoroughly by comparing it to other reading methods, there is no wide base of research comparing Word Study (Bear et al., 1996) to other methods of teaching reading. There is, however, some research that examines the relationship between Word Study and reading ability. This research mainly consists of examining the relationship between spelling and reading achievement. Word Study emphasizes spelling over phonics instruction. In order to determine grouping for Word Study instruction, a spelling inventory is given, and children are grouped according to developmental spelling stage. This spelling inventory was developed first by Henderson (1985) and later by Invernizzi et al. (1994) and Bear et al. (1996). The majority of research on Word Study has therefore concentrated on correlating spelling inventories later used in the Word Study program with reading achievement scores. For example, studies by Bear and Malone (1989) and Morris and Perney (1986) have found correlations between .70 and .90 for spelling accuracy on spelling inventories, similar to those used in Word Study, and reading ability.

The stages of spelling established by Henderson (1985) and used in Word Study were evaluated by Zutell and Rasinski (1989). The participants of their study included 60 fifth-grade students and 72 third-grade students from several elementary schools. As part of the study, the students read aloud and answered questions about an informational

passage at a difficulty level one grade above their own, they took a spelling test (on their grade level), and they were tested with a standardized reading test. The oral reading results were scored for reading accuracy, reading rate, and phrasing. The spelling tests were scored for accuracy, phonetic quality, and overall stage of spelling development according to the stages of spelling established by Henderson (1985). When the reading and spelling measures were correlated, Zutell and Rasinski (1989) found that, for third-grade students, standardized reading test scores were strongly correlated with oral reading measures and moderately to strongly correlated with spelling measures. For fifth-grade students, the correlations between the standardized reading test scores and the spelling scores increased. Overall, they found that spelling accuracy was the best predictor of reading scores, more so than reading accuracy scores of the oral reading measure.

Morris and Perney (1986) also studied the relationship between a spelling test similar to that used in Word Study and reading achievement scores. Their study included 75 first grade students from four classes at two elementary schools. Students' spelling was assessed the beginning of the school year with an 18 word spelling test. In addition, the teachers made predictions of reading achievement for each student. The same spelling test was administered in January, and in the following May two reading achievement tests were administered. The results of this testing were correlated with the spelling scores. The correlation between the informal word recognition test and spelling scores as well as the correlation between the standardized reading achievement test and the spelling scores was significant.

Zutell (1992) was further interested in examining the relationship between a spelling inventory similar to that used in Word Study and reading in third and fifth-

graders. Previously, Zutell's subjects had been from varying socioeconomic backgrounds, from middle to upper class suburban backgrounds. In this study, Zutell included 39 third grade students from two urban elementary schools ranging from low to middle-class backgrounds. The subjects had been assessed with a standardized group achievement test so that equal numbers of students could be grouped according to their below average, average, or above average reading abilities. Participants were also assessed with a standardized reading inventory that included both oral and silent reading passages. The standardized reading inventory generated three kinds of scores: silent reading speed, oral reading speed, and oral reading accuracy. Spelling and reading scores were then correlated. The results of this analysis yielded a significant correlation between spelling and oral reading accuracy ($r = .65$).

Although there is no great body of research examining the relationship between Word Study (Bear et al., 1996) and reading, the research that exists offers support for the significant correlation between Word Study spelling inventories and reading. Little research had been conducted to evaluate the effectiveness of Word Study compared to other reading programs.

*Summary*

The ability to read is crucial to a child's academic success. Although much research, money, and effort have been expended to develop good literacy education, many schools continue to have children who are reading below grade level on standardized achievement tests (Palmaffy, 1997). Reading difficulties impact all other academic areas, and it is therefore necessary to provide good, effective reading instruction in the primary grades. The findings from studies on reading programs have

varying results. According to Robinson, McKenna, and Wedman (1994) some research endorses teaching phonics skills, some research endorses whole language approaches, and other research endorses a more balanced approach that includes both approaches.

The research on Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) has provided mixed results, although the majority of comparative studies have shown Reading Mastery to be superior to other methods when analyzing the results on reading achievement tests. Research on Reading Mastery with special education or at-risk populations has shown Reading Mastery to be particularly effective when compared to other reading programs.

Most of the Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) research looked at reading achievement of students in Kindergarten and first-grade. Little research has been done that looks at the impact of Reading Mastery on children in later elementary grades. It is unclear as to the effects of this instruction in third grade and beyond. Although research has been conducted that examines the relationship between spelling and reading ability, there is little research that compares the Word Study (Bear et al., 1996) approach to other reading methods. While research examining the relationship between spelling ability and reading achievement has included third-grade students, little research exists that looks at the effects of Word Study over time. To date, few studies have compared children instructed with Word Study to children taught with other methods. There is a need for additional research designed to examine the relationship between instruction with Word Study and reading achievement in the third grade and beyond. In addition, there is a need for further studies to examine the differences between

Word Study instruction and other reading methods and their impact on reading achievement.

*Purpose*

The purpose of this study is to examine the relationship between reading instruction methods (Word Study and Reading Mastery) and the reading achievement of third-grade students. The research question to be answered in this study is as follows: Is there a statistically significant difference on the Comprehensive Test of Basic Skills (CTB McGraw-Hill, 1991) reading scores (i.e., Reading Composite, Reading, Vocabulary) between the students taught with Word Study as opposed to those instructed with Reading Mastery?

There are three possible outcomes for this study. The first possibility is that the Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) instruction group will score significantly higher on CTBS reading scores than the Word Study group. Such results would imply that aspects of the Reading Mastery approach (e.g., phonics-based, scripted instruction) are advantageous to the teaching of reading. The second possibility is that the Word Study (Bear et al., 1996) instruction group will score higher on the CTBS reading scores than the Reading Mastery group. Such results would imply that aspects of the Word Study approach (e.g., emphasis on development of orthographic knowledge, game-like instruction) are advantageous to the teaching of reading. The third possible outcome for this study is that there will be no significant difference between the Word Study and Reading Mastery groups. It is hypothesized that the third possible outcome (i.e., that there will be no significant difference between the two instructional groups) will occur. Past research has shown both Reading Mastery and Word Study instruction to be highly

correlated with reading achievement. Both instructional methods have shown to be good instructional methods of teaching reading, and therefore a statistically significant difference between the two methods is not likely.

In addition to these possible outcomes, there are other comparisons that can be made, due to the makeup of the CTBS reading achievement test. The reading and language arts portion of the CTBS consists of four subtests: Reading, Vocabulary, Spelling and Word Analysis. A fifth score is available from the combination of the two subtests, Reading and Vocabulary, and is called the Reading Composite. Due to the differences mentioned previously between the two instructional methods, additional hypotheses can be made regarding the CTBS results.

It is also hypothesized that the Word Study group will outperform the Reading Mastery group on the Spelling and Word Analysis subtests of the CTBS. Such results would imply that Word Study instruction, with its emphasis on spelling and word sorting, is advantageous to the teaching of spelling and word analysis. The Word Study curriculum is based upon the developmental stages of spelling. The methods used to encourage students to progress to each subsequent developmental spelling stage are word analysis methods, such as word and picture sorting by letter and spelling similarities. This researcher expects that these kinds of tasks will be advantageous to the Word Study group on the CTBS spelling and word analysis subtests.

If there are no significant differences between the two instructional methods, this outcome would be important information for curriculum specialists and school administrators, because Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) is very expensive for schools to provide for students. In addition to the purchase of the materials,

it is necessary for instructors to gain training in how to use the method. In comparison, Word Study requires no special materials or booklets; students and teachers make the materials themselves. The main expense of Word Study is the cost of instructional training. Therefore, if there is no significant difference between instructional methods and reading achievement scores, what would be the incentive for using a much more costly program? To summarize, the following hypotheses are made:

Hypothesis 1: There will be no significant difference between the Reading Mastery or Word Study groups in terms of CTBS Reading Composite, Reading, and Vocabulary scores.

Hypothesis 2: The Word Study group will outperform the Reading Mastery group on the CTBS Spelling subtest.

Hypothesis 3: The Word Study group will outperform the Reading Mastery group on the CTBS Word Analysis subtest.

## Method

### *Participants*

The use of both Reading Mastery and Word Study instructional methods in one elementary school in a small rural setting provided an opportunity to compare the two reading methods on children from low to middle-class socioeconomic backgrounds. The school serves a variety of socioeconomic groups although approximately 50 percent of its students qualify for free or reduced lunch.

The students selected for the study were all Caucasian and of similar socioeconomic status. There were nine female and nine male students in the RM group. The WS group contained six female students and 12 male students. The age range for the participants was eight-years, ten months to ten-years zero months. The average age of the participants was nine-years three months. A total of 36 students from two third-grade classrooms in one school were used for the present study. The Word Study (WS) classroom contained 23 students, while the Reading Mastery (RM) classroom contained 18 students. All of the students who participated in this study received instruction in either WS or RM for approximately eight months prior to taking the Comprehensive Test of Basic Skills (CTB/McGraw-Hill, 1991). Prior to beginning instruction in the third grade with either Reading Mastery or Word Study, the students at this school were taught with a Basal Reading Series.

Exclusionary factors included students with excessive absences, students who were English as a Second Language students, and transfer students who participated in either program for less than half of the school year. Five students were excluded from the WS group because of exclusionary factors, bringing the total number of WS students for the study to 18.

In order to compare the students from the two classrooms, it was necessary to compare the students in terms of their cognitive abilities to determine if the groups were relatively equal to begin with. After collection of the CTBS scores, the students were compared in regards to their Cognitive Skills Index (CSI) score on the CTBS. The CSI is a cognitive score based on the students' performance on four cognitive ability tests on the CTBS and is a standardized score that compares the student to other students their age in terms of cognitive abilities (CTB/McGraw-Hill, 1991). The RM Mean CSI scores was 90.6, with a standard deviation of 12.6. The Mean for the WS group was 97.3, with a standard deviation of 14.2. After conducting a *t* test, it was determined that there was no significant difference between the RM and WS groups in terms of their CSI scores.

The teacher using WS (teacher A) has been teaching for six years. She has been using WS with her third grade students for five years. She has a Bachelor of Science Degree and a Master's degree in Reading. The teacher is certified to teach kindergarten through sixth grade, as well as grades seven and eight in Language Arts. Teacher A received training in WS while taking a graduate level reading course. In addition, she received six hours of additional training in WS at her school and has been teaching WS for five years. The WS program that the teacher uses for her class is from the book *Words Their Way* (Bear et al., 1996), which includes objectives and activities for the students,

but does not have a specific, scripted curriculum format. The WS curriculum is therefore more flexible and subject to teacher interpretation.

The Reading Mastery (SRA Macmillan/ McGraw-Hill, 1995) instructor (teacher B) has 20 years teaching experience and has been teaching RM for two years. No other information was available for this instructor.

*Materials*

*Reading Mastery.* The Reading Mastery (SRA Macmillan/ McGraw-Hill, 1995) curriculum used by the instructor included materials from Reading Mastery I, lessons 1-160. The curriculum begins with an introduction to sounds and practice in pronouncing sounds. Other lessons focus on blending sounds, oral reading, and decoding words.

In later lessons, students learn to identify components of stories, answer factual questions, and emphasis is placed on students reading and following written instructions. For detailed information on the Reading Mastery curriculum, see Appendix A.

*Word Study.* The Word Study (Bear et al., 1996) curriculum begins with a spelling inventory to determine the students' stage of reading development. Once the inventory has been given, the spelling sample is analyzed to determine the stage of development as well as each student's orthographic knowledge. Once the spelling samples are analyzed to determine stages, the instructor will use this information to monitor students' growth, as well as to plan and organize instruction. In the WS classroom used in this study, students were grouped into four small groups, with students ranging from the letter-name alphabetic stage to the within word pattern stage. The students participated in three different kinds of work: circle work with the teacher, seat work where students worked in

groups, pairs, or individually on activities, and center work where students worked individually or in pairs in centers or stations set up around the room.

Once students are grouped according to developmental stage, they begin WS (Bear et al., 1996) activities. Word sorting is central to WS, as this activity laces throughout all the developmental levels of reading. The sorts consist of phonics, spelling, and vocabulary activities that use categorization to determine generalizations about words.

The specific curriculum goal for students in the letter-name alphabetic stage include the following: (a) review of beginning sounds with picture sorts, (b) introduction of consonant blends and digraphs with pictures, (c) introduction of short vowels and word families through word sorts, (d) the study of consonant blends and digraphs in word families, (e) study of short vowels as consonant/vowel/consonant patterns outside of rhyming families, and (e) integration of blends and digraphs with short vowels. Reading and writing activities include reading aloud to students, encouragement of oral language activities, reading in patterned trade books, dictation, and simple rhymes, recording and rereading individual dictations one paragraph long, labeling pictures, and writing in journals regularly. Detailed information about the Word Study curriculum can be found in Appendix B.

To compare students from both Reading Mastery and Word Study instructional groups, archival data from the Comprehensive Tests of Basic Skills (CTB/McGraw-Hill, 1991) was analyzed. The CTBS was given to all third grade students at the school in the spring of 2001.

The CTBS is a norm referenced achievement test that assesses children in the following domains: reading/language arts, mathematics, science, and social studies. The reading test includes reading comprehension, language expression, vocabulary, and reference skills. The test-retest reliability coefficients for elementary students in the reading/language arts domain range from .91 to .92. This test has been reported by CTBS to be valid for assessing students in the academic areas described above. Only the scores from the reading/language arts domain of the CTBS for third graders will be used in the present study to evaluate the instructional methods. The CTBS Reading Composite consists of a Reading domain, as well as a Vocabulary domain. All test questions on the CTBS are presented in a multiple-choice format.

In the Reading test, students must demonstrate their understanding of a reading passage by identifying stated information, defining grade-level vocabulary, and indicating the proper sequence of events in the passage. Other Reading test tasks include making conclusions, inferring relationships, identifying elements of a passage such plot, character, setting, and climax, making predictions, making distinctions between fact and opinion, as well as reality and fantasy, and critiquing the author's purpose, point of view, and effectiveness.

On the Vocabulary test, the student is required to demonstrate an understanding of word meanings and relationships. This test includes tasks such as inferring words that are missing from a sentence and using context in order to infer words missing from reading passages. The Reading and Vocabulary tests make up the Reading Composite.

The Spelling test includes identification of correct spelling of vowel sounds in words presented in sentences and phrases, identification of the correct spelling of

consonant sounds in words presented in sentences and phrases, and identification of correct spelling of structural units in presented words (either in sentences or in phrases).

The last test is Word Analysis, and it requires students to recognize initial or final single consonant sounds, consonant blends, or digraphs. Additional tasks include identification of sight words in sentences that are presented orally, recognition of short, long, and variant vowel sounds in words, identification of the meaning of contractions, and recognition compound words, as well as the components that make them. Students must also identify word roots and affixes (CTB/McGraw-Hill, 1991).

*Procedure*

In order to get approval for the proposed study, appropriate district personnel were contacted and given a description of the study's objectives. Once district personnel gave approval, school administrators were contacted and given a description of the study. The school administrators agreed to allow the study to take place. In addition, an application for permission from Western Kentucky University's Human Subjects Review Board to conduct the study was approved. For the letter of approval, see Appendix C.

Reading scores from the CTBS were gathered by the principal with the students' names blacked out. The principal gathered all the test results and grouped the students according to reading instruction method. Once scores on the CTBS were received, they were compared by using a *t* test to see if there were any statistically significant differences between students who received instruction with Word Study or Reading Mastery in terms of CTBS reading achievement scores (i.e., Reading Composite, Reading, Vocabulary, Spelling, Word Analysis). A quasi-experimental posttest only design was used for this

## Results

The Word Study group and Reading Mastery group each had 18 students. The dependent variables in this analysis were the five domain scores for the CTBS reading test: Reading Composite, Reading, Vocabulary, Spelling, and Word Analysis. The independent variable was the type of reading program- Reading Mastery (SRA Macmillan/ McGraw-Hill, 1995) or Word Study (Bear et al., 1996). Mean scores for each reading group and CTBS domain are presented in Table 1. Five *t* tests were calculated that compared the Reading Mastery group to the Word Study group on each of the five domains of the CTBS reading test. After completion of the *t* tests, a Bonferroni multi-comparison procedure was used to control the familywise error rate. Table 1 reports the results of *t* tests with Bonferroni corrections for the comparisons.

Hypothesis 1 stated that the there would be no significant difference between the RM group and the WS group on the CTBS reading scores, including Reading Composite, Reading, and Vocabulary. After Bonferroni corrections there were no significant differences between the RM and WS groups. Thus, this hypothesis was supported by the data analysis.

Hypothesis 2 stated that the WS group would outperform the RM group on the CTBS spelling test. Results of the *t* test were significant in favor of the Word Study group. Hypothesis II was therefore supported by the data analysis.

Hypothesis 3 stated that the WS group would outperform the RM group on the CTBS Word Analysis test. Even after correcting with a Bonferroni procedure, the results of the *t* test were significant in favor the Word Study group. Thus, this hypothesis was supported by the data analysis. The *t* score values are also listed in Table 1.

Table 1

*Mean CTBS Standard Scores for the Word Study and Reading Mastery Groups*

| CTBS Subject Area | Word Study (n=18) | Reading Mastery (n=18) | *t* |
|---|---|---|---|
| Reading Composite | 634.6 | 599.4 | 2.79 |
| Reading | 636.1 | 602.1 | 2.69 |
| Vocabulary | 632.4 | 596.1 | 2.44 |
| Spelling | 612.3 | 555.6 | 3.24 * |
| Word Analysis | 657.8 | 603.8 | 4.12 ** |

* $p < .05$. ** $p < .01$.

Note. A Bonferroni multiple-comparison procedure was applied to control for Type I error.

## Discussion

The general purpose of this study was to determine whether Reading Mastery (SRA Macmillan/McGraw-Hill, 1995) or Word Study (Bear et al., 1996) instruction was more effective with third grade students. Thirty-six third grade students participated in this study, 18 from each instructional method. CTBS reading and language arts scores were compared for both groups. Results of this study indicated that when corrected for Type I errors with a Bonferroni multiple-comparison procedure, only two domains of the CTBS scores were significantly higher, in the areas of Spelling and Word Analysis, in favor of the Word Study instruction group.

The first hypothesis for this study stated that there would be no statistically significant difference between the two instructional groups on the CTBS reading scores. This hypothesis was supported in that there were no statistically significant differences between the two instructional groups on the CTBS Reading Composite, Reading, or Vocabulary scores on the CTBS when corrected for Type I errors. The results of this study imply that both methods provide similar outcomes on reading achievement measures. These results are similar to those achieved by Kaufman (1974) and O'Connor et al. (1993). In Kaufman's study, where Reading Mastery was compared to a control group using a conventional reading program, the third grade students in both groups performed similarly in that they both performed on grade level in reading and

arithmetic. The implication would be that both methods of instruction were good instructional methods. In O'Connor et al. (1993), Reading Mastery was compared to another phonics-based reading program. These reading programs were similar in that they taught letter-sounds in isolation, taught blending, and used regular decodable vocabulary words for spelling. Their results indicated no significant differences between the two instructional methods.

Previous research on both Reading Mastery and Word Study have focused on younger children and have indicated that reading instruction method is very important in the kindergarten and first grades. The present study indicates that perhaps reading method is not as crucial in the third-grade, since there was no significant difference between the two methods studied here. While Reading Mastery and Word Study are both phonics-based programs, their similarities end there. Yet, despite their differences, they both performed equally in terms of this sample of third grade students' reading achievement scores. This similarity in performance raises the question of which method may be the most economical for schools to provide for their students' reading instruction. The high cost of Reading Mastery may not be justified when there is a cheaper, and just as effective, alternative reading program available.

The second hypothesis stated that the Word Study group would score significantly higher than the Reading Mastery group on the Spelling test of the CTBS. This outcome was supported. This hypothesis was predicted due to the emphasis placed on spelling in the Word Study curriculum. Whereas Reading Mastery places emphasis on letter-sound correspondence, and drill and repetition of reading selections, Word Study emphasizes use of picture and word sorts to analyze word and spelling patterns. Students in the Word

Study group are split into groups based upon their developmental stage of spelling, and instruction is geared towards the group's needs. For these reasons, the Word Study group was likely to have an advantage on the spelling portion of the CTBS reading test. The results of the higher CTBS spelling scores for the Word Study group suggest that the Word Study curriculum is advantageous for students in the area of spelling.

The third hypothesis stated that the Word Study group would score significantly higher on the Word Analysis test of the CTBS. This outcome was also supported by the current research results. Again, this hypothesis was made due to the curriculum of Word Study (Bear et al., 1996). The types of questions on the CTBS Word Analysis test closely resemble the specific word analysis tasks in the Word Study curriculum. In the Word Study curriculum, the activities focus on picture sorts of words by short and long vowel sounds, studying long and short vowel sounds by exploring word patterns, and keeping a journal of "outlaw" words that look similar in spelling but are not pronounced the same and do not follow a "rule." In addition to these tasks, other activities in the Word Study curriculum include word sorting tasks with consonant blends and digraphs, introduction of word families, integration of blends and digraphs with short vowels, and introduction of less common patterns, vowel dipthongs, and complex consonant patterns. These tasks closely resemble the tasks in the Word Analysis test of the CTBS; thus it seems logical that the Word Study group would excel in this area.

*Summary*

The research reviewed for this study focused on comparing different reading methods and reading ability scores or on correlations between spelling and reading measures. There was no available research that compared either Word Study or Reading

Mastery to a Word Analysis or Spelling test on a standardized reading achievement measure. This research is also unique in that it compared Word Study to another reading program, which had not been done previously. It also looked at the relationship between reading instruction method and spelling and word analysis skills. Previous studies have examined the relationship between reading method and reading ability but have not examined the different domains of reading including spelling and word analysis.

*Limitations*

The present study compared two methods of teaching reading for third grade students. There were many limitations in the present study, such as the research design, measurement issues, and external validity.

The quasi-experimental posttest only design of this study was intended to examine the effectiveness of two different reading methods in terms of how students from each group performed on the Reading and Language Arts tests of the CTBS. A quasi-experimental design does not allow for randomization of the subjects into the separate groups. Due to the lack of randomization of subjects to different groups, we cannot be certain if the groups were truly equal prior to their receiving instruction in either Word Study or Reading Mastery. Measures of the students' achievement prior to reading instruction were not available. Although a comparison of students' CSI scores did not reveal a significant difference between the two groups, it is possible that The Word Study group may have had higher reading abilities to begin with, and that may have been the reason they scored higher on the CTBS measures. It is also possible that the Word Study group may have had lower reading abilities to begin with, and the instruction had more of an impact than we know.

Another limitation is the small sample size. The total number of students participating in this study was 36. Generalization of results is limited because it is unlikely that these 36 students represent the general population of students their age. Also, these students were all of Caucasian descent, and from a poor rural area. Generalizations to students from other geographic areas or ethnic backgrounds cannot be made.

Another variable that needs to be considered as a limitation is the potential differences between the teachers. The Word Study instructor may have simply been a more effective reading teacher, or perhaps there were differences in levels of enthusiasm about the curriculum which may have affected teaching style. There was also a difference between the length of time each teacher had been using the curriculum. The WS teacher had been using WS for five years, while the RM instructor had only been using RM for two years. This difference in familiarity with the curriculum may have been a factor. It is also unclear as to how the WS instructor implemented the curriculum; it is possible that she did not follow the curriculum exactly as intended and used teacher judgment about what to include as well as how to implement the WS activities. This unknown factor also may have affected her students' performance on the CTBS. While information was gathered about the Word Study instructor, not as much information was available for the Reading Mastery instructor. There are many unknown factors such as years of teaching experience, amount of training received, areas of certification, as well as individual teacher differences that would need to be taken into account if this study were replicated.

In addition, there was an inability to control intervening variables that are unknown, such as after school programs students might have attended where reading

instruction was provided, tutorial programs in which students may have participated, and how much parent support was available in terms of promoting literacy at home. Did parents read to their children, or have their children read to them? Does the home environment emphasize literacy or an appreciation for literacy? These are just a few variables that may or may not have contributed to the results, but they are considerations that should be made if this study were to be replicated.

*Future Research*

Although this research has shown that Word Study (Bear et al., 1996) instruction appears to produce more gains in some areas of reading as measured by the CTBS reading/language arts test when compared to Reading Mastery instruction, due to the research limitations there are a number of factors that should be considered by future researchers.

One major area that needs to be addressed in the future is that of the student sample that might be used for future study. This study used a small sample of students that were all of Caucasian descent from a low-income rural area. Future research should include not only more ethnic diversity but also socioeconomic diversity, such as inner-city children or middle class children from suburban backgrounds. More studies need to be conducted that would include a larger sample size, which would provide more generalizability, in addition to the cultural and ethnic factors.

Another factor that should be addressed in future research is that of a randomized sample. According to the faculty that participated in this study, the students were "randomly" assigned to classrooms. However, upon further questioning, this researcher found that some students were selected by teachers or family members to be in certain

classrooms, based upon desirability of either the student or the teacher. This information indicates that, for this study, there was not a random sample of participants. While this kind of study that takes place in a public school makes it difficult to control factors such as random assignment of students, it nevertheless needs to be taken into consideration in future research studies. While it may not be possible to have random assignment of groups for this study in the future, the results could be strengthened by including a control group to use as a comparison for the RM and WS groups. In addition, inclusion of pretest scores for the participants of this study such as previous achievement scores would provide additional comparison data.

The results of this study indicted further areas of study that might be undertaken by researchers, such as that of reading gains made in later grades by these same students. Do the higher test scores found in third grade still remain in later grades? It would be interesting to track these students in a longitudinal study to see whether they continue to show stronger scores in later grades. An additional question is whether multiple years of instruction in either Word Study or Reading Mastery lead to greater gains in reading. For example, a comparison could be made for students who receive two years of Word Study instruction versus students who receive two years of Reading Mastery instruction.

Another possible area of study would be that of program satisfaction with the curriculum of Word Study and Reading Mastery on the part of both the students and teachers. How well do the students like their perspective programs? Do they find the classes motivating? Do they enjoy the curriculum, and does it make them want to read? In addition, how do the teachers feel about the curriculum-- is it easy to implement, do they enjoy the curriculum tasks? Also, are there specific behavioral problems that might

be inherent to the curriculum, such as children getting bored or frustrated and acting out? These are just a few of the questions that future research could examine by designing a survey for both students and teachers to complete.

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# Appendix A

*Reading Mastery Curriculum*

*Reading Mastery Curriculum*

Reading Mastery I (SRA Macmillan/McGraw-Hill, 1995) consists of 160 daily lessons. Its focus is on the beginning stages of literacy and includes practice in decoding and reading comprehension skills. The specific curricular goals will be discussed here. The objective of the beginning track is for children to recognize and produce the sound that is represented by the symbol. The first letter sounds presented include /a/ (short a), /m/, /s/, /e/ long e, /r/, /d/, /f/, /i/ short I, /th/ as in *the,* /t/, /n/, /c/, /o/ short o, /a/ long a, /h/, /u/ short u, and /g/. Once these letter-sounds are mastered, other letters and sounds are added. These include /l/, /w/, /sh/, /I/ the word I, /k/, /o/ long o, /v/, /p/, /ch/, /e/ short e as in *end,* /b/, /ing/, /I/ as in *ice,* /y/, /er/, /x/, /oo/ as in *moon,* /j/, /y/ long y as in *why*, /wh/, /qu/ as in *quick,* /z/, and /u/ long u as in *use.* The next lessons are designed to provide practice in pronouncing sounds. When the student is given a sound orally, the student must be able to pronounce the sound. These include all of the sounds listed above. Once this is mastered, students move on to sequencing games where they are shown action sequences pictured in their workbooks. The student must perform the pictured actions in order. Next the students are instructed to perform the "first" and "next" actions pictured in their workbook, and, finally, they perform the actions without looking at the pictures.

Lessons 1 through 33 focus on blending sounds and learning to do this quickly. These lessons require the student to say at a normal rate a compound or multisyllable word that the teacher has presented slowly with a pause between two parts. Then the student must say at a normal rate the word the teacher has presented slowly with the sounds lengthened and with no pause between the sounds. Next, the student is required to

say a word slowly, one sound at a time, without pausing between the sounds. These blending tasks progress, gradually getting more difficult, until the student is able to say the sounds from left to right given words written in their workbook, slowly blending the sounds without pausing (SRA Macmillan/McGraw-Hill, 1995).

Now that the student is reading words from written material, the focus is on increasing decoding skills through continued practice with blending sounds and oral reading. Students are encouraged to read these words faster and faster, eventually not having to sound out each individual component of the word. Recognition of word families is introduced in lesson 34 with the addition of rhyming activities, as well as activities that include learning how to read and sound out irregular words. These lessons range from lessons 34 to160 (SRA Macmillan/McGraw-Hill, 1995).

Beginning with lesson 124, students are taught to decode words with endings such as *ed, ing, er,* and *s* and to decode words that begin with two consonants. The lessons begin with the student being able to identify the word, identify the ending, and finally being able to read the whole word. Eventually the student progresses to story reading where they begin by reading two-word stories and work up to reading two-page stories. Students are expected to begin reading the story by sounding out the words and then saying them fast. The ultimate goal is for a student to get to the point where they do not have to sound out each word but can read at a normal rate, sounding out words only as needed (SRA Macmillan/McGraw-Hill, 1995).

The purpose of lessons 108-160 is to get the student to read out loud previously read selections in a specified period of time with no more than three errors. Students' start out reading 17 words per minute for 2.5 minutes and gradually work up to 38 words

per minute for 2.5 minutes. In lessons 57-118 students learn to identify components of stories and sentences such as finding a word that was heard previously, finding the period in a sentence, finding a quotation, finding a question mark, and, finally, identifying the title of the story. Reading Comprehension begins to be addressed in lesson 140 with picture questions where the student must make predictions, answer factual questions, complete words or sentences, and circle a yes or no to posed questions based upon the pictures (SRA Macmillan/McGraw-Hill, 1995).

Lessons 151-160 emphasize teaching the students to read and follow written instructions. The student must demonstrate through actions or words that they understand the written instructions. Lessons 1-160 include take-home exercises that focus on furthering skills introduced in the instruction lessons. In the Reading Mastery (SRA Macmillan/ McGraw-Hill, 1995) instruction group, there was strict adherence to the curriculum, the instructor did not deviate from the lesson plans dictated by the programs' authors.

# Appendix B

*The Word Study Curriculum*

*Word Study Curriculum*

The curriculum used by the Word Study (Bear et al., 1996) instructor included behavioral objectives for students in the letter name-alphabetic and within word spelling stages. Before grouping students according to spelling stage, a spelling inventory was given which is included here. In addition, the specific curriculum goals will also be discussed. The spelling inventory consists of the following words; *bed, ship, when, lump, float, train, place, drive, bright, shopping, spoil, serving, chewed, carries, marched, shower, cattle, favor, ripen*, and *cellar*. In addition, the Word Study instructor looked at the students' use of invented spelling, and identified what word concepts students may have been using but confusing. It is likely that there were a variety of stages in the classroom, and the instructor had to group children according to developmental level and organize teaching activities accordingly. The same spelling inventory can be used throughout the year to monitor the students' progress.

Central to Word Study curriculum is the word sort. There are two different kinds of sorts: picture sorts and word sorts. As the name implies, picture sorts consist of sorting pictures of items based on different orthographical features. For example, a picture sort may consist of showing pictures of different items and sorting according to initial consonant sound (pictures of a ball, a box, and a bat all go under the letter /b/). The basic premise here is for the student to compare and contrast word elements, categorizing pictures that go together and separating those that do not. The picture sorts are demonstrated first by the instructor so that the students know what the pictures represent as well as how to perform the sort. Then the students work in groups under the direction

of the teacher. According to Bear et al., (1996) "Sorting tasks are conducted so that students' determine similarities and differences among target features as they utilize higher level critical thinking skills and make categorical judgments" (p. 61).

Word sorts are similar to picture sorts except that they use printed word cards instead of pictures. Word sorts are introduced during the letter-name alphabetic stage. This typically begins with sorting words that are already known by the students' so that they are familiar with the words and can pronounce most of them. A word sort for students in the letter-name stage would consist of sorting words that share the same beginning sound, by word families (*jump, lump, stump* vs. *lamp, stamp, camp*) and by word meaning. Students in the within-word pattern sort their words into groups by vowel patterns (*wait, train, mail, pain* vs. *plate, take, blame*). Again, the word sort is introduced by the instructor and is then done in groups with teacher direction. After guided practice, students can sort individually. In addition, these sorts might be written in columns in word study notebooks (Bear et al., 1996).

Goals for students in the letter-name alphabetic stage include a review of beginning sounds, introduction of consonant blends and digraphs, short vowel study, and introduction of word families. These goals are addressed through picture sorts, word sorts (both of these were discussed previously), word banks, reading and writing activities, and personal readers. A word bank is a collection of words chosen by the students that they know well and can remember. The words are written on cards and are added to a growing collection. They are reviewed often and words that are forgotten are discarded. Words in the word bank can come from any source where a child recognizes the word. Students in the Word Study class typically begin with at least 50 words in their word bank. This

number grows slowly and steadily. Once a student has at least 200 words in their word bank they are typically ready to move on to the next level (Bear et al., 1996).

Another activity important to Word Study is the personal reader. Personal readers are individual student copies of charts, rhymes, jingles, individual dictations, and self-selected passages from simple books the student can read independently. The stories in the personal readers are numbered and dated. Word banks can be kept in the reader as well. In addition, alphabetic picture charts and charts with short vowels and their sounds are also kept for quick and easy reference. The student may wish to keep a word bank list to look over and review. The personal reader can be taken home for the student to share with parents and siblings and for the student to review (Bear et al., 1996).

As students' progress in the letter-name alphabetic stage more activities are introduced. Reading and writing activities include reading aloud to students, continuing to encourage invented spelling in independent writing but holding students' accountable for spelling features and words they have studied, collecting two to three paragraph dictations which are reread on a regular basis, and encouraging more expansive writing with some simple editing skills such as punctuation and high-frequency words. The Word Study (Bear et al., 1996) focus during this latter part of the letter-name alphabetic stage is on sorting pictures and words by different short vowel word families, short vowel sounds, and consonant/vowel/consonant patterns, examination of consonant blends and digraphs, beginning simple sound sorts that compare short and long vowel sounds, and continuing to collect words for the word bank (up to 200).

As students enter the within-word pattern stage, many of the activities such as picture and word sorts will stay the same. Typically a student entering this stage will have

more than 200 words in his or her word bank, and the word bank becomes too awkward so its use is phased out. This sequence begins with a review of short vowels as they compare to long vowels. Next, the focus shifts to common long vowel patterns and r-influenced vowel patterns (*car, her, for, fear, learn*, etc.). Once common patterns are addressed, less common patterns and vowel dipthongs (*cot, boy, boil, saw*, etc.) are addressed. Towards the later part of this stage complex consonant patterns (e.g. *cent, cut, gym, goat*, etc.), homophones (*bear/bare, Mary/marry/merry*) and homographs (*read,* present tense, and *read*, past tense) are addressed as they appear in word/vowel sorts. The Word Study (Bear et al., 1996) sequence looks something like this:

1. Picture sorts of words by short and long vowel sounds. This helps students to focus on the sounds of the vowels and where in the word they need to direct their attention.

2. Study vowels by comparing long and short sounds and then by exploring common patterns for the long vowel sound (long a = *cake* CVCe pattern, *rain* CVVC pattern, and *say* CVV pattern).

3. Study each long vowel in the same way. As additional vowels are examined, teach students to explore the similarities between them.

4. Study other vowel sounds and less common patterns.

In addition, high frequency words are introduced such as *said, because, there, they're, friend*, and *again*. These high frequency words do not follow common spelling patterns but may be included in word sorts as oddballs. For instance, the word *said* would be examined along with other *ai* words such as *paid, faint*, and *wait* in terms of how it looks similar but differs in pronunciation (Bear et al., 1996).

# Appendix C

*Human Subjects Review Board Letter of Approval*

WESTERN KENTUCKY UNIVERSITY
*Human Subjects Review Board*
Office of Sponsored Programs
104 Foundation Building
270-745-4652; Fax 270-745-4211
E-mail: Phillip.Myers@Wku.Edu

In future correspondence please refer to HS02-076, March 5, 2002

Mia Sullivan
1313 Hepburn Ave., #2
Louisville, KY 40204

Dear Mia:

1. Your research project, "Reading Mastery Versus Word Study Instruction as it Pertains to Third Grader's Reading Achievement Scores," was reviewed by the HSRB and it has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

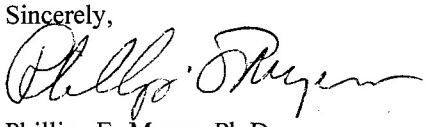
2. In addition, the IRB found that: (1) **informed consent will be waived because anonymity is assured in analyzing data already collected.** (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data. (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.

   **a.** Your research therefore meets the criteria of **Expedited Review** and is **approved.**

3. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Sponsored Programs at the above address. Please report any changes to this approved protocol to this office. A Continuing Review protocol will be sent to you in the future to determine the status of the project.

Kindest regards.

Sincerely,



Phillip E. Myers, Ph.D.
Director, Office of Sponsored Programs and
Human Subjects Coordinator

c: Human Subjects File02-076

HSApprovalSullivanHS02-076